Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1.   (Withdrawn) A method of processing high dimensionality data, comprising the steps of:

a) computing a matrix inverse and eigen functions according to a given number of limited observations of said data;

b) determining the dimensionality of said data according to said observations to provide an independent amount of discrimination necessary to process said data.

2.   (Withdrawn) The method according to claim 1 wherein said data is speech frames.

3.   (Withdrawn) The method and according to claim 2 wherein said speech is converted into speech feature vectors which are compared using a linear discriminant function, wherein the dimensionality of said feature vectors is between 1000 - 2000.

4.   (Withdrawn) The method according to claim 3 wherein the step of computing includes generating an eigenvector that simultaneously diagonalyzes the covariances in between speaker and between channel spaces.

5.   (Withdrawn) The method according to claim 4 wherein the step of determining includes employing linear discriminant analysis on said data.

6.   (Currently Amended) In a method of automatically verifying a speaker as matching a claimed identity wherein enrollment speech data of a known speaker is compared with test data, including the steps of processing spoken input enrollment speech data and test speech data into ~~speech signals into~~ a series of_speech frames of digital data representing the input speech, analyzing the speech frames by a speaker verification module which compares ~~the~~ enrollment and test features and generates respective match scores therefrom, and ~~determining~~ determines whether the test speech corresponds with the enrollment speech based upon the match scores, the improvement ~~wherein:~~comprising:

causing the known speaker to enroll by uttering from a vocabulary a predetermined number of combined words, each word indicative of a number between one to nine and at least one bridging word "ti";

adapting parameters of a set of word models for the combined words based upon input speech data to provide adapted word models,

concatenating the adapted word models to create an enrollment feature vector indicative of the enrollment data;

~~the step of processing the spoken input enrollment and test speech data includes~~ performing a feature extraction process on the ~~enrollment and~~ test speech data to convert

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variable input to a fixed-length test feature vectors that are is independent of the order of words spoken or the speaking rate; and

the step of analyzing the speech frames by comparison includes computing a weighted Euclidean distance between the enrollment feature vectors by and the test feature vector using a discriminant analysis;.

wherein the test feature vector is based on extracting the same predetermined number of combined words in the test speech data, where each word is indicative of the same number between one to nine and at least the same bridging word "ti".

7.   (Currently Amended) A method of speaker verification according to claim 6, wherein the feature extraction process further includes adapting the parameters of a set of "seed" word models for a predetermined number of vocabulary words, wherein the "seed" word models comprise hidden Markov (HMM) models and the adaptation is accomplished using a single pass of the Baum-Welsh Welch algorithm.

8.   (Original) A method of speaker verification according to claim 7, wherein the predetermined number of vocabulary words comprise five words, namely, "four", "six", "seven", "nine", and "ti".

9.   (Currently Amended) A method of speaker verification according to claim 7, wherein the enrollment and test feature vectors are created by concatenating the state-mean vectors of the adapted HMM word models.

10.   (Cancel)

11.   (Currently Amended) The method according to claim 10 6 including the further step of:

comparing said enrollment feature vector obtained from said enrollment with a the test feature vector obtained from a speech test to determine the identity of said one a test speaker voice.

12.   (Currently Amended) The method according to claim 11 wherein said comparison analyzing is implemented by subjecting said enrollment and test feature vectors to a the weighted Euclidean Distance computation.

13.   (Cancel)

14.   (Cancel)

15.   (Currently Amended) The method according to claim 10 6 wherein said enrollment feature vector has a total dimensionality of 1568.

16.   (Currently Amended) The method according to claim 10 6 further including the step of:

forming said enrollment feature vector for each known speaker using the difference in vectors between a first and second speaker channel.

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17.   (Currently Amended) The method according to claim 16 wherein each ~~said~~ ~~different~~ speaker vector approximates speaker speech with white noise channel differences.

18.   (Newly Added) A method of speaker verification by matching a claimed speaker with a known speaker, including the steps of processing spoken input enrollment speech data and test speech data, generating respective match scores therefrom, and determining whether the test speech data corresponds with the enrollment speech data, the method comprising:

forming enrollment speech data as a first plurality of pair-phrases using a set of words, the set of words consisting of a predetermined number of words;

forming test speech data as a second plurality of pair-phrases from the same set of words, the second plurality of pair-phrases different from the first plurality of pair-phrases;

converting, by a Baum-Welch algorithm, the first plurality of pair-phrases into a first set of adapted HMM word models;

converting, by the Baum-Welsh algorithm, the second plurality of pair-phrases into a second set of adapted HMM word models;

ordering the first set of adapted HMM word models into a first sequence;

ordering the second set of adapted HMM word models into a second sequence, the second sequence and the first sequence having the same order and the same predetermined number of words; and

comparing the first and second sets of adapted HMM word models using a weighted Euclidean distance.